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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,571	04/25/2002	Hiroaki Kitano	KAK-004	5012
23353	7590	05/15/2006		
RADER FISHMAN & GRAUER PLLC LION BUILDING 1233 20TH STREET N.W., SUITE 501 WASHINGTON, DC 20036			EXAMINER FERNANDEZ RIVAS, OMAR F	
			ART UNIT 2129	PAPER NUMBER

DATE MAILED: 05/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/018,571	KITANO ET AL.	
	Examiner	Art Unit	
	Omar F. Fernández Rivas	2129	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 April 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>A1,A2</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to an RCE entered on March 6, 2006.
2. The Office Actions of March 9, 2005, and October 6, 2005 are incorporated into this Non-Final Office Action by reference.

Status of Claims

3. Claims 1-17 have been cancelled. Claims 18-28 are new. Claims 18-28 are pending on this application.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 19 recites the limitation "said **genetic** parameters" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 21 recites the limitation "storing the **N x M** networks" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 18-28 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The computer system must set forth a practical application of judicial exception to produce a real-world result. *Benson*, 409 U.S. at 71-72, 175 USPQ at 676-77. The invention is ineligible because it has not been limited to a substantial practical application.

For a claimed invention to be statutory the claimed invention must produce a useful, concrete, and tangible result. The Courts have found that subject matter that is not a practical application or use of an idea, a law of nature or a natural phenomenon is not patentable. See, e.g., *Rubber-Tip Pencil Co. v. Howard*, 87 U.S. (20 Wall.) 498, 507 (1874) ("idea of itself is not patentable, but a new device by which it may be made practically useful is"); *Warmerman*, 33 F.3d at 1360, 31 USPQ2d at 1759.

For a claimed invention to be statutory under 35 U.S.C. 101, the claims must have the FINAL RESULT (not the steps) produce a useful (specific, substantial, AND credible), concrete (substantially repeatable/ non-unpredictable), AND tangible (real world/ non-abstract) result.

If the specification discloses a practical application but the claim is broader than the disclosure such that it does not require the practical application, then the claim must be amended. A claim that recites a computer that solely calculates a mathematical formula is not statutory.

In the present case, claims 1-26 describe a method for operating a data processing system. The system adapts the parameters of network structures in a pool to produce network structures with a high degree of fitness to solve a given problem.

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The claims provide the steps performed by the system to obtain these network structures. However, the result from performing the operations in the claims is not provided to an outside device or presented in some way to a user so as to make the result useful and tangible. The result produced by the invention is maintained inside the computer, which is considered to be a manipulation of abstract ideas (not tangible).

Claims 27-28 describe subject matter similar to those of claims 1-26 and are rejected on the same basis.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 18-23 and 25-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Koza et al. (US Patent #5,148,513, referred to as **Koza**)

Claims 18 and 28

Koza anticipates a method of operating a data processing system (**Koza**: C52, claim 11, L1-2), the method comprising the steps of: providing an expression profile of a network, said network represented by triplets having a network structure (**Koza**: C7, L10-22; C16, L53-64; Examiner's Note (EN): a network is a combination of interrelated elements as described in the applications specifications on page 4, lines 15-17),

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parameters (**Koza**: C7, L10-16; C14, L13-34; C14, L42-50; EN: the arguments are parameters), and a degree of fitness (**Koza**: abstract, L5-11, C13, L37-48; C23, L53-60; Figs. 3A-3B); generating network structures allowing said expression profile, said generated network structures being stored in a topology pool (**Koza**: C21, L53-59; C23, L30-36; C52, claim 10; Figs 3A-3B; EN: creating an initial population is storing in a topology pool); selecting network structures from said topology pool, adapting said parameters to said selected network structures, and computing said degrees of fitness (**Koza**: C23, L30-68; C24, L1-10; C24, L53-68, C25, L1-4; Figs. 3A-3B; EN: performing the operations on the selected entities is adapting parameters. A fitness is assigned to each entity in the population); storing said networks represented by triplets resulting from steps above in a triplet pool (**Koza**: C13, L37-54; C23, L30-52; Figs. 3A-3B; EN; environmental and evolving populations are triplet pools); and screening candidate networks from said triplet pool, said screened candidate networks being stored in a candidate triplet pool (**Koza**: C23, L30-68, C24, L1-2; Figs 3A-3B; EN: selecting entities based on fitness is screening candidate networks. The selected entities (candidates) will form a candidate triplet pool).

Claim 19

Koza anticipates selecting N network structures from said topology pool (**Koza**: C23, L30-40; Figs. 3A-3B; EN: designating a population as an evolving population is selecting N networks from the topology pool (initial population)) and adapting M parameter sets to each of said selected N network structures, said M parameter sets having the highest degree of fitness with said expression profile (**Koza**: C23, L53-68,

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C24, L1-10; Figs. 3A-3B; EN: performing an operation on the selected entities based on highest fitness).

Claim 20

Koza anticipates estimating parameters using a process from the group consisting of a genetic algorithm and simulated annealing (**Koza**: C24, L3-10; Figs 3A-3B).

Claim 21

Koza anticipates reorganizing network structures of N networks in the triplet pool using a process from the group consisting of a genetic algorithm and simulated annealing (**Koza**: C24, L3-10; C24, L59-65; Figs 3A-3B; EN: performing any of these operation will alter the network structure of the selected entities); adapting parameter sets to each of said N reorganized network structures (**Koza**: C24, L3-68, C25, L1-20; EN: a genetic algorithm will adapt the parameters of the entities selected to generate a fit solution to a problem); and storing the N x M networks in said triplet pool, each of said N x M networks having one of said M parameter sets having high degrees of fitness (**Koza**: C23, L53-64; C26, L34-48; EN: by removing the entities with the lowest fitness, all of the entities in the population will have a high degree of fitness).

Claim 22

Koza anticipates selecting P triplets having degrees of fitness at or above a predetermined threshold value from among triplets in said triplet pool, left only said P triplets in the triplet pool as a result (**Koza**: C23, L53-64; C26, L34-38; EN: by removing the entities with the lowest fitness values, only the P triplets with the highest degree of

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fitness will be left in the pool. Some measure must be used to determine what a low degree of fitness will be).

Claim 23

Koza anticipates searching the vicinity of said selected P triplet; and replacing said searched P triplets when finding a triplet of higher degree of fitness (**Koza**: C51, L53-60; EN: selecting programs (entities) from the population based on the highest fitness).

Claim 26

Koza anticipates the structure of said generated network structure is partially known (**Koza**: C16, L53-66).

Claim 27

Koza anticipates a computer program embodied on a computer readable medium comprising: code means adapted to perform all the steps of claim 18 when said program is run on a data-processing system (**Koza**: C52, L65-68, C53; L1-47; EN: if the process is performed in a computer, code means are needed so that the computer can perform its operations).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koza as set forth above in view of Arci et al. (US Patent #5,761,381, referred to as **Arci**)

Claim 24

Koza does not teach producing a mutant triplet for each triplet from said triplet pool, a mutant pool storing said mutant triplet; evaluating a degree of fitness with a mutant profile for said mutant pool; and integrating said degrees of fitness for said mutant pool, if a candidate group having a degree of fitness above a certain value being chosen and stored in said candidate triplet pool.

Arci teaches producing a mutant triplet for each triplet from said triplet pool, a mutant pool storing said mutant triplet; evaluating a degree of fitness with a mutant profile for said mutant pool; and integrating said degrees of fitness for said mutant pool, if a candidate group having a degree of fitness above a certain value being chosen and stored in said candidate triplet pool (**Arci**: C3, L18-42; Fig. 2; EN: producing a set of new genotypes (mutant triplets) is producing (or storing in) a mutant pool. The new genotypes are assigned a fitness value and a selection process selects the best new genotypes and places them in the genotype pool).

It would have been obvious to one of ordinary skill in the arts at the time of the applicant's invention to modify the teachings of Koza by producing mutant triplets, evaluating the fitness of each mutant triplet and integrating the mutant triplet into the candidate triplet pool if its fitness is above a certain value as taught by Arci for the

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purpose of maintaining in the candidate pool only those triplets that have a high degree of fitness for solving a given problem.

Claim 25

Koza anticipates said mutant triplet is produced by eliminating a gene and removing all bonds from said gene (**Koza**: C52, claim 2; EN: replacing a portion (gene) of the selected program is eliminating a gene).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Koza US Patent #4,935,877

Koza et al US Patent #5,390,282

9. Claims 18-28 are rejected.

Correspondence Information

10. Any inquires concerning this communication or earlier communications from the examiner should be directed to Omar F. Fernández Rivas, who may be reached Monday through Friday, between 8:00 a.m. and 5:00 p.m. EST. or via telephone at (571) 272-2589 or email omar.fernandezrivas@uspto.gov.

If you need to send an Official facsimile transmission, please send it to (571) 273-8300.

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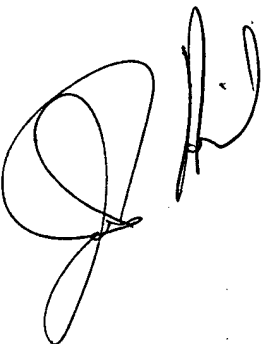
If attempts to reach the examiner are unsuccessful the Examiner's Supervisor, David Vincent, may be reached at (571) 272-3080.

Hand-delivered responses should be delivered to the Receptionist @ (Customer Service Window Randolph Building 401 Dulany Street Alexandria, VA 22313), located on the first floor of the south side of the Randolph Building.

Omar F. Fernández Rivas
Patent Examiner
Artificial Intelligence Art Unit 2129
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Patent & Trademark Office

Friday, May 05, 2006

OFR

 P. E.